BY ORDER OF THE COMMANDER
AIR FORCE MATERIEL COMMAND

AIR FORCE MATERIEL COMMAND
INSTRUCTION 63-510

2 MAY 2006

Acquisition

DEFICIENCY REPORTING, INVESTIGATION AND RESOLUTION

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: AFMC/A4YE (Mr. Kevin Null)
Supersedes AFMCI63-510, 7 June 2002

Certified by: AFMC/AFY (Mr. William Maynor)
Pages: 10
Distribution: F

This instruction prescribes AFMC policy and procedures to implement TO 00-35D-54 *USAF Deficiency Reporting, Investigation, and Resolution*. It is consistent with the objectives of Air Force Policy Directive (AFPD) 63-5, *Quality Assurance*, Air Force Instruction (AFI) 63-501, *Air Force Acquisition Quality Program* and AFI 99-103, *Capabilities Based Test and Evaluation*. This instruction provides policy relating to implementing deficiency resolution and creates the management framework for application of systems engineering processes. It is to be used by all AFMC organizations and its contractors to provide war-winning capabilities; on time, on cost.

SUMMARY OF REVISIONS

This document substantially revises AFMCI 63-510 and requires a complete review. This revision changes the title to Deficiency Reporting, Investigation and Resolution to emphasize the intent of resolution in addition to reporting and investigation. This revision updates the role of the deficiency reporting, investigation and resolution program in implementing acquisition quality assurance programs. It adds the requirement that contracts include provisions making the government-based process the primary method of reporting and tracking deficiencies. It also adds AFMC responsibilities for training development and oversight.

1. General: Deficiency reporting, investigating, and resolution processes promote the ability to *identify and correct* deficiencies before they impact mission capability. Successful implementation drives resolution decisions, tempered by total ownership cost, to correct, mitigate, and/or accept risk of conditions impacting operational safety, suitability and effectiveness (OSS&E). Success is based upon two premises: 1) that the user/operator/maintainer reports deficiencies on their assigned systems and 2) that the program manager (PM) establishes a proactive process to analyze data and act accordingly to implement solutions. Specific objectives include:

1.1. Identify and resolve Test and Evaluation (T&E), Product Quality, and Materiel deficiencies throughout a product or system lifecycle.

1.2. Commence deficiency reporting and resolution as early as possible during systems acquisition and throughout government T&E so systems improve faster with the least cost.

1.3. Integrate deficiency analysis and resolution processes within quality, systems engineering, and overall Life Cycle Management Plans (LCMP) to identify root cause and prevent or mitigate recurrence.

1.4. Obtain cost credit and/or contractual remedy, if available, for procurement related quality deficiencies resulting from poor workmanship and nonconformance to applicable specifications, drawings, standards, processes or other technical requirements.

1.5. Provide historical collection of deficiency data to share knowledge with authorized activities responsible for design, development, safety, purchasing, production, supply, operations, maintenance, contract administration, and other functions.

2. Policy. Complete and thorough deficiency identification and resolution are crucial to fielding and sustaining safe, suitable, and effective weapon and military systems. It is AFMC policy that:

2.1. Acquisition and sustainment PMs shall use T.O. 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution* procedures throughout a system or product life cycle to identify, report, and resolve deficiencies and recommended enhancements through correction or acceptance of risk.

2.2. Information technology tools and associated business rules will be established to standardize processes and facilitate the collection and dissemination of deficiency data.

2.3. Contract clauses or quality assurance provisions will be incorporated into contracts, including those for contractor logistics support (CLS) and total system performance responsibility (TSPR), to require the government-based deficiency reporting, investigating, and resolution process is the primary method of reporting and tracking deficiencies.

3. Responsibilities :

3.1. **HQ AFMC/A4:**

3.1.1. Serve as the United States Air Force (USAF) and AFMC Office of Primary Responsibility (OPR) for the USAF deficiency reporting, investigating, and resolution process.

3.1.2. Budget for sustainment and capital improvement of the deficiency reporting, investigating, and resolution process database and supporting tools.

3.1.3. Prepare, coordinate, and issue policy consistent with Air Force and Department of Defense (DoD) efforts and perform as the technical content manager for TO 00-35D-54.

3.1.3.1. Provide approval/disapproval of Air Force Technical Order (AFTO) Forms 22, Technical Order (TO) Improvement Report and Reply, submitted for TO 00-35D-54.

3.1.3.2. Provide approval/disapproval of requests for waiver of TO 00-35D-54 processes.

3.1.3.3. Establish and maintain the deficiency reporting, investigating, and resolution process Unit Compliance Inspection (UCI) checklist.

3.1.4. Conduct annual workshops to report on the health of the process to stakeholders, communicate program intent and vision, train users, and obtain customer feedback.

3.1.5. Establish and chair the Advisory Council and conduct meetings to recommend policy, data system improvements, and develop strategic vision.

3.1.6. Develop a Training Management Plan (TMP) to:

3.1.6.1. Define and coordinate the training needs for functional roles and processes

3.1.6.2. Provide funds to meet TMP objectives

3.1.6.3. Oversee development and maintenance of training material.

3.1.6.4. Ensure training is provided and documented.

3.1.7. Develop performance measures indicating process efficiency and resolution effectiveness.

3.1.7.1. Establish standardized review processes at Center and Major Command (MAJCOM) level.

3.1.7.2. Provide trend analysis of deficiency data and key performance measures to identify improvement opportunities.

3.1.8. Participate on the DoD Product Quality Deficiency Report (PQDR) Council and coordinate efforts with other DoD activities, federal agencies, and industry.

3.2. **HQ AFMC/EN:**

3.2.1. Promote the relationship between quality programs, systems engineering, and deficiency reporting, investigating, and resolution processes to improve quality, reliability, availability and maintainability.

3.2.2. Maintain awareness of deficiency reporting, investigating, and resolution process performance measures and assist in establishing corrective actions to improve process performance.

3.3. **HQ AFMC/A3:**

3.3.1. Serve as the AFMC OPR for T&E Deficiency Reporting processes.

3.3.2. Coordinate with AF/TE, AFMC/A4, and AFOTEC to define T&E deficiency reporting and resolution procedures per TO 00-35D-54.

3.3.3. Provide approval/disapproval for T&E related AFTO Forms 22, TO Improvement Report and Reply recommendations.

3.3.4. Evaluate implementation and support of the deficiency reporting, investigation, and resolution processes related to T&E during unit compliance inspections of acquisition, sustainment, test, and laboratory organizations.

3.3.5. Maintain awareness of performance measures and assist in establishing corrective actions to improve compliance.

3.4. **AFMC Centers:**

3.4.1. Implement reviews of deficiency reporting, investigating, and resolution process metrics and where applicable, develop wing and/or center-specific measures to manage performance.

3.4.2. Logistics, product, and test centers shall maintain a Single Point of Contact Office (SPOCO) to administer and provide oversight of the center's deficiency reporting, investigating, and resolution process. SPOCOs shall:

3.4.2.1. Participate as members and action officers of the deficiency reporting, investigating, and resolution process advisory council.

3.4.2.2. Solicit and represent center positions at annual workshops and advisory council meetings.

3.4.3. Ensure personnel assigned to key deficiency reporting, investigating, and resolution process responsibilities are qualified to perform their duties and meet competency objectives in accordance with assigned job responsibilities and the Training Management Plan.

3.4.4. Test centers and/or test activities perform Watch Item Tracking (WIT) and deficiency reporting throughout T&E in accordance with TO 00-35D-54 and AFI 99-103.

3.5. **Program Manager (PM) and/or System Support Manager (SSM):**

3.5.1. Establish and implement the deficiency reporting, investigating, and resolution process within quality and OSS&E plans commencing not later than completion of critical design review and continuing throughout the product and/or system lifecycle.

3.5.2. In concert with MAJCOM customers, develop viable capability improvement and maintenance engineering/sustaining engineering (ME/SE) processes to address shortfalls in product and/or system performance identified through deficiency reporting.

3.5.3. Establish and maintain visibility of deficiencies impacting weapon or military systems performance regardless of where the deficiency is assigned for resolution.

3.5.4. Ensure program personnel assigned to key deficiency investigating and resolution process responsibilities are qualified to perform their duties and adhere to the procedures in TO 00-35D-54.

3.5.5. Periodically assess the efficiency and effectiveness of deficiency resolution. Program managers shall implement key metric reviews and where required, develop program-specific measures to manage investigating and resolution process performance.

3.5.6. In concert with MAJCOM customers, ensure deficient conditions closed as acceptable risk or as an enhancement are periodically reviewed and considered for inclusion in future requirements/improvements, e.g. via the Engineering Change Proposal process.

3.6. **Chief Engineers/Lead Engineers:**

3.6.1. Implement ME/SE and capability improvement processes for identifying and analyzing deficiencies impacting OSS&E to determine cause and corrective action options.

3.6.2. Establish guidance for deficiency analysis to ensure subject matter expert review of deficient conditions and their resolution actions.

3.6.3. Approve mitigation and resolution plans for all Category I (CAT I) and mishap/high accident potential deficiencies.

3.6.4. Establish criteria to request Deficiency Report (DR) exhibits for teardown and analysis.

3.6.4.1. Ensure criteria emphasize root cause analysis and resolution of identified deficiency to prevent recurrence.

3.6.4.2. Working with materiel managers, define exhibit investigation processes to minimize costs associated with unnecessary and repetitive investigations.

3.6.4.3. Perform exhibit investigations only after completion of the appropriate cost-benefit analysis, a needs assessment, or a request to support mishap investigations.

3.7. **Supply Chain and Inventory Managers:**

3.7.1. Establish the deficiency reporting, investigating, and resolution process within quality plans and implement procedures to resolve deficiencies consistent with TO 00-35D-54 requirements and incorporate as needed in Service Level Agreements (SLA) with Program Managers.

3.7.2. Maintain visibility of assigned assets listed in suspended asset supply condition code Q and ensure timely processing and movement when applicable.

3.7.3. When Mission Capable (MICAP) conditions exist on items that are in suspended asset supply condition code Q, validate the necessity of the pending investigation. If the investigation is required, ensure it is timely and the subsequent repair process is expedited; if not required, coordinate the appropriate change of condition code with the assigned action point and expedite repair.

3.8. **Logistics Center Maintenance Wing Quality Organizations:**

3.8.1. Establish Originating Point deficiency reporting and Support Point investigating functions and promote the process to ensure knowledge of criteria.

3.8.2. Systematically perform analysis of reported deficiencies, routine failures, workmanship, and production processes to identify high consumption of manpower, parts, and other resources that negatively impact quality, reliability, availability and maintainability.

3.8.3. Ensure originating and investigating organization exhibit processes are established to ensure the timely processing, marking, and security of exhibits.

3.8.4. Establish internal processes to report and resolve deficiencies discovered on internal organic workload.

3.9. **Electronic Systems Center Operations and Sustainment Systems Group:**

3.9.1. Provide administration, sustainment, and configuration management of deficiency data systems, tools, and user interface.

3.9.2. Recommend system improvements consistent with the Air Force Information Technology architecture.

3.9.3. Evaluate functional requirements and provide recommendations. Implement validated requirements and establish customer-approved data system interfaces.

3.9.4. Provide data query and analysis support to the deficiency reporting, investigating, and resolution process PM and AFMC staff.

3.9.5. Provide technical and training support at meetings, conferences, and workshops.

3.9.6. Develop automated performance metrics and assist in trend analysis to determine the health and operational performance of the data system and related system tools.

LORNA B. ESTEP, SES, Deputy Director for Supply
Directorate of Logistics

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

41 CFR Subpart 101-26-8, *Discrepancies or Deficiencies in GSA or DoD Shipments, Material, or Billings* is public law which requires DoD to have a uniform system for reporting discrepancies or deficiencies in material or shipments directed by General Services Administration (GSA) or DoD activities.

TO 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution* contains procedures to identify, report, and resolve deficiencies on weapon systems.

AFPD 63-5, *Quality Assurance,* requires Air Force establish and use a quality deficiency reporting and correction system.

AFI 63-501, *Air Force Acquisition Quality Program,* requires the using and acquisition activities to utilize the product quality deficiency reporting and corrective system as described in TO 00-35D-54 to provide visibility of overall product quality.

AFMCI 63-1201, *Disciplined Systems Engineering* provides chief and lead engineer responsibilities including being responsible for system and/or end item configuration.

AFI 21-115, *Product Quality Deficiency Report Program* implements a standardized reporting, investigating, and resolution process for deficiencies that go across Military Services, Defense Logistics Agency (DLA) and GSA lines.

AFI 21-118, *Improving Air and Space Reliability and Maintainability* provides guidance and procedures for improving the reliability and maintainability of fielded aerospace equipment.

AFI 99-103, *Capabilities Based Test and Evaluation* provides guidance on the planning, conducting, and reporting of cost effective T&E programs.

Abbreviations and Acronyms

AFI—Air Force Instruction

AFPD—Air Force Policy Directive

AFMC—Air Force Materiel Command

Cat I—Category I

CLS—Contractor Logistics Support

Condition Code Q—Asset Suspended for Quality

ESC—Electronic Systems Center

IAW—In Accordance With

IMS—Inventory Management Specialist

MAJCOM—Major Command

ME/SE—Maintenance Engineering/Sustaining Engineering

MICAP—Mission Capable

OSS&E—Operational Safety, Suitability, and Effectiveness

PM—Program Manager

QA—Quality Assurance

SCM—Supply Chain Manager

SLA—Service Level Agreement

SPOCO—Single Point of Contact Office

T&E—Test and Evaluation

TO—Technical Order

TSPR—Total System Performance Responsibility

UCI—Unit Compliance Inspection

WIT—Watch Item Tracking

Terms

Category I Deficiency—Category I deficiencies are those which may cause death, severe injury, or severe occupational illness; may cause loss or major damage to a weapon system; critically restricts the combat readiness capabilities of the using organization; or which would result in a production line stoppage.

Category II Deficiency—Category II deficiencies are those that impede or constrain successful mission accomplishment (system does not meet minimum operational requirements but does not meet the safety or mission impact criteria of a Category I deficiency). It may also be a condition that complements, but is not absolutely required for, successful mission accomplishment. The recommended enhancement, if incorporated, will improve a system's operational effectiveness or suitability.

Chief Engineer—The individual responsible for all system technical activities, including engineering and configuration changes, in support of the Program Manager.

Contractor Logistics Support—A planned cost effective contract support method used to provide all or part of the logistics support elements for a system, equipment, or item for extended periods of time or for the life of the system or equipment.

Deficiency Report—The generic term used within the USAF to record, submit and transmit deficiency data which may include, but is not limited to a Deficiency Report involving quality, materiel, software, or warranty deficiency data submitted using the Standard Form 368 or equivalent format.

End Item—Equipment that can be used by itself to perform a military function.

Exhibit—The item reported as being deficient, or a sample item which represents the reported deficient condition, which can be analyzed to determine the possible cause of the defect.

Lead Engineer—The individual responsible for all end-item technical activities, including engineering and configuration changes in support of the end-item PM.

Materiel Deficiency—An unacceptable condition or recommendation for an enhancement that impacts

the operational safety, suitability, and/or effectiveness of a system, subsystem or component. It does not include deficiencies related to workmanship or non-conformance of processes. (See Product Quality Deficiency)

Maintenance Engineering (ME)—ME is defined as the engineering effort required to review, assess, define and resolve technical or supportability deficiencies revealed in operational service. ME does not address execution and implementation of system modifications or upgrades (efforts that change form, fit, function, or interface of a component or system) as these efforts are primarily intended to increase system capability/performance. The focus of ME is to resolve an existing operational deficiency, either technical or supportability, and not as a vehicle to incorporate new capabilities.

Operational Effectiveness—The overall degree of mission accomplishment of a system or end-item used by representative personnel in the environment planned or expected for operational employment of the system or end-item considering organization, doctrine, tactics, information assurance, force protection, survivability, vulnerability, and threat.

Operational Safety—The condition of having acceptable risk to life, health, property, and environment caused by a system or end-item when employing that system or end-item in an operational environment. This requires the identification of hazards, assessment of risk, determination of mitigating measures, and acceptance of residual risk.

Operational Suitability—The degree to which a system or end-item can be placed satisfactorily in field use, with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime use rates, maintainability, full-dimension protection, operational safety, human factors, architectural and infrastructure compliance, manpower supportability, logistics supportability, natural environmental effects and impacts, and documentation and training requirements.

Operational Safety, Suitability and Effectiveness (OSS&E)—A process for establishing and preserving the safety, suitability, and effectiveness of Air Force systems and end-items over their entire operational life by preserving technical integrity via prudent use of disciplined engineering practices, assurance of proper operation and maintenance, effective supply systems, and field utilization and maintenance trends feedback to system program offices.

Product Quality Deficiency—A deficiency detected on new or newly reworked government-owned products that do not fulfill their expected purpose, operation, or service due to deficiencies in design, specification, materiel, software, manufacturing process, and/or workmanship. This includes the initial failure of the item after installation or placement in service, as well as pre-mature failure within an identified warranty period or specified period of performance.

Product Quality Deficiency Report (PQDR)—A report of deficiency detected on new or newly reworked government-owned products that do not fulfill their expected purpose, operation, or service due to deficiencies in design, specification, materiel, software, manufacturing process, and/or workmanship. This includes the initial failure of the item after installation or placement in service, as well as pre-mature failure within an identified warranty period or specified period of performance.

Program Manager (PM)—PMs are responsible to their customers for all aspects of the planning, development, sustainment, and evolution of the products they acquire and support. PMs serve as the single-face-to-the-user for their respective systems or products. PMs are responsible for program performance and overall health of the product. The PM is the System Program Director (SPD) or Product Group Manager (PGM) for their system or product line. Some PM functions are delegated to System Support Managers (SSMs), Supply Chain Managers (SCMs), and Development System Managers

(DSMs).

Service Level Agreement (SLA)—Bilateral agreements between the customer and their suppliers. Their purpose is to establish a framework of expectations between both parties regarding service levels as measured in terms of quantity, quality, and timeliness. SLA's apply only to organically supported functions.

Supply Chain Manager (SCM)—Designated individual(s) at an Air Logistics Center (ALC) responsible for managing a line of National Stock Number (NSN)-coded items. SCM functions include requirements determination; cataloging, standardization and engineering data management; stock control and distribution; technical management functions; and pricing for their assigned items. SCMs report to ALC Commanders/Civilian Directors, but are responsible for supplying, repairing, and managing materiel to support SMs.

Sustaining Engineering (SE)—Engineering efforts on systems, products or materials required to resolve technical or supportability deficiencies revealed in operational service. It includes, but is not limited to, assessing deficiency indicators defining the characteristics and cause of such deficiencies, determining the impact on the affected product, identifying and evaluating alternative solutions, and determining the preferred solution. It excludes support for items managed by the Air Force Working Capital Fund (AFWCF), software maintenance engineering, CLS-maintained systems, aircraft engine components, and items managed by the Defense Logistics Agency. SE may be conducted by contractors or by organic government facilities and personnel. SE by contract includes all associated contractual efforts (e.g., engineering and technical data modeling simulation and testing) which are integral to the completion of the overall engineering task. It excludes orders placed with organic facilities/depots. SE by contract funds are tracked under Element of Expense Identification Code (EEIC 583). Funds executions for SE by non-contract organic facilities/depots are tracked under EEIC 590. (Air Force Data Dictionary)

Systems Engineering—An interdisciplinary approach encompassing the entire set of scientific, technical, and managerial efforts needed to evolve, verify, deploy, and support an integrated and life-cycle-balanced set of system solutions that satisfy customer needs.

System Support Manager (SSM)—The lead individual at an AFMC organization (e.g., ALC) delegated sustainment responsibility for a system/product by the SM. SSMs report directly to the PM.